

AMENDMENTS TO THE CLAIMS

Please cancel claims 2, 9 and 11, amend claims 3-8, 10, and 12-26, and add new claims 27 and 28.

1. (original) A wavelength locker for locking the wavelength of a light beam substantially to a predetermined wavelength, the wavelength locker comprising at least one Fabry-Perot etalon arranged to receive a sample portion of the light beam and to produce at least one output light beam therefrom, the intensity of which is dependent upon the wavelength of the sample light beam, wherein the Fabry-Perot etalon comprises diamond.
2. (canceled)
3. (currently amended) A wavelength locker according to ~~Claim-claim 1, or a wavelength drift detector according to Claim 2,~~ further comprising adjustment means, dependent upon the output of the etalon, for adjusting the wavelength of the light beam in order to reduce or eliminate its a drift from the predetermined wavelength.
4. (currently amended) A wavelength locker ~~or drift detector~~ according to ~~Claim-claim 3,~~ in which wherein the adjustment means comprise control electronics.
5. (currently amended) A wavelength locker ~~or drift detector~~ according to ~~Claim-claim 3 or Claim 4,~~ in which wherein the adjustment means is/are arranged to control a light source that generates the light beam.
6. (currently amended) A wavelength locker ~~or drift detector~~ according to ~~Claim-claim 5,~~ in which wherein the light source is remote from the wavelength locker ~~or drift detector~~, and the adjustment means transmits a control signal to the light source to adjust the wavelength of the light beam.

7. (currently amended) A wavelength locker ~~or drift detector~~ according to ~~Claim claim~~ 5, ~~in which wherein~~ the light source comprises a part of the wavelength locker or drift detector.
8. (currently amended) A wavelength locker ~~or drift detector~~ according to ~~any preceding claim 1, in which wherein~~ the light beam comprises an optical signal, and the sample portion of the light beam comprises a sample portion of the optical signal.
9. (canceled)
10. (currently amended) A wavelength locker, ~~drift detector or transmitter~~ according to ~~Claim claim 5 or any claim dependent thereon, in which wherein~~ the light source comprises a laser.
11. (canceled)
12. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any preceding claim 1, in which wherein~~ the diamond comprises a single crystal diamond.
13. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any preceding claim 1, in which wherein~~ the diamond is a synthetic diamond.
14. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~Claim claim~~ 13, ~~in which wherein~~ the diamond has been formed by chemical vapour deposition.
15. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any preceding claim 1, in which wherein~~ the diamond is substantially free from defects.

16. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any preceding claim 1, in which wherein~~ the diamond etalon comprises a partially-reflective input face and an opposite partially-reflective output face, separated by a thickness of the etalon.
17. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~Claim claim~~ 16, ~~in which wherein~~ the input and output faces are substantially flat and lie in substantially parallel planes.
18. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~Claim claim~~ 16 ~~or Claim 17, in which wherein~~ the input and output faces are polished.
19. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any one of claims claim~~ 16 to 18, ~~in which wherein~~ the input face and/or the output face is/are free from any coating.
20. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any one of claims claim~~ 16 to 19, ~~in which wherein~~ the thickness of the diamond etalon is at least 0.1 mm, ~~preferably at least 0.2 mm, especially at least 0.5 mm.~~
21. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~any one of claims claim~~ 16 to 20, ~~in which wherein~~ the thickness of the diamond etalon is no greater than 5.0 mm, ~~preferably no greater than 4.0 mm, especially no greater than 2.0 mm.~~
22. (currently amended) A wavelength locker, ~~drift detector, transmitter, or use~~ according to ~~Claim claim~~ 20 ~~or Claim 21, in which~~ the diamond etalon has a thickness in the range 1.0 mm to 1.5 mm, ~~preferably having a thickness of 1.25 mm.~~

23. (currently amended) A wavelength locker,~~drift detector, transmitter, or use~~ according to ~~any preceding claim 1, in which wherein~~ the diamond etalon has transmitted and reflected wavelength dependent output characteristics, each of which has a free spectral range of $2X$ GHz, allowing wavelength locking points at spacings of both $2X$ GHz and X GHz.
24. (currently amended) A wavelength locker,~~drift detector, transmitter, or use~~ according to ~~Claim claim 23, in which wherein~~ wavelength locking points at spacings of X GHz are determined by a difference between the transmitted and reflected wavelength dependent output characteristics of the etalon.
25. (currently amended) A wavelength locker,~~drift detector, transmitter, or use~~ according to ~~Claim claim 24, in which wherein~~ the amplitude of the difference between the transmitted and reflected wavelength dependent output characteristics of the etalon is preset such that the wavelength locking points are X GHz apart.
26. (currently amended) A wavelength locker,~~drift detector, transmitter, or use~~ according to ~~any one of claims claim 23 to 25, in which wherein~~ X is 25.
27. (new) A wavelength drift detector for detecting the drift of the wavelength of a light beam from a predetermined wavelength, the wavelength drift detector comprising at least one Fabry-Perot etalon arranged to receive a sample portion of the light beam to produce at least one output light beam therefrom, the intensity of which is dependent upon the wavelength of the sample light beam, wherein the Fabry-Perot etalon comprises diamond.
28. (new) An optical signal transmitter comprising a wavelength locker according to claim 8, the optical signal transmitter including a light source which generates the optical signal.